

REMARKS

The Office Action of June 1, 2011, has been carefully considered.

The Patent Office has stated that the six poles of the generator and the 24 poles of the propulsion motor are not shown in the drawings, and has thus objected to the drawings under 37 C.F.R. 1.83(a).

The Applicants respectfully traverse the objection to the drawings, for the following reasons.

35 U.S.C. 113 provides in pertinent part that:

"The applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented."

By implication, therefore, a drawing is not always necessary for an understanding of the invention.

The Applicants submit that it is unnecessary to provide an illustration in the drawings of the inside of an electrical motor/generator. A person of ordinary skill in the art clearly has knowledge of the design and function of a generator having six poles, or a propulsion motor having 24 poles.

Moreover, the claimed invention is not directed to a motor generator, but to a propulsion system that uses an existing motor or generator. Since a generator having six poles and a propulsion motor having 24 poles are very well

known, and their functionality and definition are well understood, it is not necessary to represent these elements in the drawings.

Favorable reconsideration of the objection to the drawings is thus urged.

Claims 6-8, 11, and 12-14 have been rejected under 35 U.S.C. 103(a) as obvious over Shibata (US 3,543,518) in view of Nogaret et al. (US 2002/0139629).

These references have been carefully reviewed but are not believed to disclose or suggest Applicants' invention as presently claimed.

Applicants therefore respectfully request favorable reconsideration of the rejections under 35 U.S.C. 103(a) in view of the following remarks.

The present invention requires the following elements:

- 1) a synchronous, permanent electrical generator having an electrical output and a plurality of poles, powered directly by the driving machine; and
- 2) a synchronous, permanent magnet electrical propulsion motor having a plurality of poles, powered by the output of the electrical generator, with a fixed and direct electrical connection thereto.

The present invention thus provides a simple propulsion system that eliminates the need for an intermediate means

between generator and motor. The electrical connection provides great flexibility of arrangement, and the ease of arranging any number of poles, inherent in permanent magnet alternating current machines, completely eliminates the necessity of a mechanical gearbox.

These features of the present invention result in weight savings and savings in initial investments, as well as increased fuel efficiency.

According to the invention, there is therefore a fixed and direct electrical connection between the electrical propulsion motor and the permanent magnet electrical generator. This is not the case according to Shibata et al.

Shibata et al. discloses a system for driving a load, such as the propeller of a ship, by combining the output of several prime movers with the aid of at least one clutch, and at least one electric motor driving a propeller through a mechanical gear with at least one pinion.

As the Patent Office acknowledges, Shibata et al. does not disclose the use of permanent magnet machines for both generator and motor.

Nogaret et al. discloses a method and system for controlling and ensuring uninterrupted power supply to the power transmission of an electrically powered vehicle that is designed to operate from an external power supply or from an

onboard autonomous power supply. The device uses a permanent magnet motor with a flywheel for storing kinetic energy in order to achieve smooth transfer from autonomous operation to external power supply, or vice versa.

In regard to Nogaret et al., the disclosure of a permanent magnet machine to drive the kinetic energy storage device (the flywheel) does not in any way disclose a fixed and direct electrical connection between generator and propulsion motor, as required by the present claims.

In fact, such a fixed and direct connection in Nogaret et al. would be counterproductive in regard to the intended function of the kinetic energy storage device, and so the Nogaret et al. reference can be said to teach away from Applicants' invention in this regard.

In Nogaret et al., the propulsion motors are in fact described as "three phase motors", in which case, they derive their power from an inverter. Synchronous alternating current machines are commonly able to function as motors or generators without any configurational modifications. The function is solely dependent upon the direction of the flow of energy to the shaft.

It is clear, therefore, that the prior art references to Shibata et al. and Nogaret et al. fail to disclose or suggest a propulsion system comprising a permanent magnet electrical

generator used with a permanent magnet propulsion motor, in which there is a direct connection between the generator and propulsion motor.

The Examiner argues that it would have been obvious to one skilled in the art to modify the system of Shibata et al. by providing both a permanent magnet motor and a permanent magnet generator, based on the Nogaret et al. teaching of a permanent magnet motor. Where is the motivation to modify the Shibata et al. teaching in such a way? Why would one of ordinary skill in the art have expected such a combination to be successful?

Based upon the above-noted distinctions between Shibata et al. and Nogaret et al. and the invention, it is clear that one of ordinary skill in the art could not derive the invention based upon a combination of these two references.

The rejection under 35 U.S.C. 103(a) should therefore be favorably reconsidered and withdrawn.

Claim 9 has been rejected under 35 U.S.C. 103(a) as obvious over Shibata et al. in view of Nogaret et al. and further in view of Dade et al. (US 5,199,912); and claim 10 has been rejected under 35 U.S.C. 103(a) as obvious over Shibata et al. in view of Nogaret et al. and Dade et al. further in view of Giordano (US 6,242,881).

Claims 9 and 10 each depend on claim 6. Since claim 6 is

novel and unobvious over the prior art, it follows that claims 9 and 10 are also novel and unobvious, for the same reasons. Favorable reconsideration and withdrawal of the rejections of claims 9 and 10 is thus urged.

Applicants submit that the application is now in condition for allowance, and an early notice to that effect is earnestly solicited.

**Applicants hereby petition the Commissioner for Patents to extend the time for reply to the notice dated June 1, 2011, for one (1) month from September 1, 2011, to October 1, 2011. A duly completed credit card authorization form is attached to effect payment of the extension fee.**

Respectfully submitted,

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